

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Serial No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name
PO038420	TWM001-VU	1	1	Net 30	M4130NT1.000W.120	4130 Round Tube 1.00 X .120Wall : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft				20	11/28/2017	✓ 20		✓ S017136	Stock	12/4/2017	\$ 2.88 / ft	0		\$58.56	TW Metals
		2			M304TR0.750W.049	304 Round Tube .750 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft				160		✓ 160		✓ S017137	Stock	12/4/2017	\$ 2.10 / ft	0		\$336.00	TW Metals
		3			M304TR0.500W.049	304 Round Tube .500 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft				40		✓ 40		✓ S017138	Stock	12/4/2017	\$ 2.80 / ft	0		\$112.00	TW Metals
		4			M6061T6T0.625W.065	6061-T6 Round Tube .625 X.065W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				36		✓ 36		✓ S017139	Stock	12/4/2017	\$ 3.15 / ft	0		\$113.40	TW Metals
		5			M6061T6T0.375W.058	6061-T6 Round Tube .375 X.058W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				24		✓ 24		✓ S017140	Stock	12/4/2017	\$ 2.15 / ft	0		\$51.60	TW Metals
		6			M6061T6T0.625W.125	6061-T6 Round Tube .625 X.125W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				12		✓ 12		✓ S017141	Stock	12/4/2017	\$ 5.15 / ft	0		\$61.80	TW Metals
		7			M4130NT0.750W.049	4130 Round Tube .750 X.049W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft				24		27 1/2 ✓ 24		✓ S017142	Stock	12/4/2017	\$ 11.48 / ft	0		\$274.46	TW Metals
		8			M4130NT0.750W.083	4130 Round Tube .750 X.083W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft				20		✓ 20		✓ S017143	Stock	12/4/2017	\$ 3.85 / ft	0		\$78.28	TW Metals
Total:										336		337								\$1,086.10	



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80895542

FROM: CHIC

PAGE 1

CUST NUMBER: 1203820 NET WGT: 121.060 REQ. DATE: 11/28/17 CONFIRMED  
SOLD TO: SHIP TO:  
DART AEROSPACE LTD DART AEROSPACE LTD  
1270 ABERDEEN ST 1270 ABERDEEN ST  
HAWKESBURY ON HAWKESBURY ON  
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 11/22/17  
TERMS: NET 30 DAYS VIA: COMMON CARRIER  
F.O.B.: SHIPPING POINT FREIGHT: PREPAID  
CUST ORD NO.: P0038420 RELEASE NO.:  
RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH  
0001 33364 SMLS CD 4130 RD 6736 1 X .120 17/24 FT

CLN# ORD QTY INVOICE QTY SHIPPED QTY WT  
20.000 FT 20.333 FT 20.333 FT 22.936

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: 9A991.d Export License: NLR Expiration Date: 0/00/00  
PO: 49371988 HT: 606333 PC: 1 CUSTOMER QTY: UOM  
MLT: GERMANY MFG: GERMANY SLB/CL: 1639142

0002 36860 SMLS CD 304/L A269 3/4 OD X .049 WA 20' CL

CLN# ORD QTY INVOICE QTY SHIPPED QTY WT  
160.000 FT 160.000 FT 160.000 FT 58.675

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00  
PO: 49363338 HT: YX1108593 PC: 8 CUSTOMER QTY: UOM  
MLT: CHINA MFG: CHINA SLB/CL: -

0003 36506 SMLS CD 304/L A269 1/2 OD X .049 WA 20' ML

CLN# ORD QTY INVOICE QTY SHIPPED QTY WT  
40.000 FT 40.000 FT 40.000 FT 9.437

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00  
PO: 49361319 HT: YX1604531 PC: 2 CUSTOMER QTY: UOM  
MLT: CHINA MFG: CHINA SLB/CL: -

SP1A-124

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE  
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL  
REVIEW.  
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80895542

FROM: CHIC

PAGE 2

CUST NUMBER: 1203820 NET WGT: 121.060 REQ.DATE: 11/28/17 CONFIRMED  
SOLD TO: SHIP TO:  
DART AEROSPACE LTD DART AEROSPACE LTD  
1270 ABERDEEN ST 1270 ABERDEEN ST  
HAWKESBURY ON HAWKESBURY ON  
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 11/22/17  
TERMS: NET 30 DAYS VIA: COMMON CARRIER  
F.O.B.: SHIPPING POINT FREIGHT: PREPAID  
CUST ORD NO.: F0038420 RELEASE NO.:  
RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH  
0004 42558 D6061-T6 5/8 OD X .065 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT
	36.000 FT	36.000 FT	36.000 FT	4.821

PCS  
3

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00  
PO:49369003 HT:F002408380002 PC: 3 CUSTOMER QTY: UOM  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:223156

0005 41952 D6061-T6 3/8 OD X .058 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT
	24.000 FT	24.000 FT	24.000 FT	1.627

PCS  
2

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00  
PO:49376296 HT:F002504860001 PC: 2 CUSTOMER QTY: UOM  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:224194

0006 42588 D6061-T6 5/8 OD X .125 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT
	12.000 FT	12.000 FT	12.000 FT	2.771

PCS  
1

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00  
PO:49370848 HT:F002436350002 PC: 1 CUSTOMER QTY: UOM  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:223458

807-124

THANK YOU FOR THIS ORDER

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O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80895542

FROM: CHIC

PAGE 3

CUST NUMBER: 1203820 NET WGT: 121.060 REQ.DATE: 11/28/17 CONFIRMED  
SOLD TO: SHIP TO:  
DART AEROSPACE LTD DART AEROSPACE LTD  
1270 ABERDEEN ST 1270 ABERDEEN ST  
HAWKESBURY ON HAWKESBURY ON  
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 11/22/17  
TERMS: NET 30 DAYS VIA: COMMON CARRIER  
F.O.B.: SHIPPING POINT FREIGHT: PREPAID  
CUST ORD NO.: PO038420 RELEASE NO.:  
RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH  
0007 33047 CDS 4130 6736 3/4 X .049 17/24 FT

CLN# ORD QTY INVOICE QTY SHIPPED QTY WT  
24.000 FT 23.917 FT 23.917 FT 8.771

PCS  
1

\*\* 1 TEST REPORTS REQUIRED \*\*

\*\* 1 CERTS REQUIRED \*\*

ECCN: 9A991.d Export License: NLR Expiration Date: 0/00/00  
PO:49371988 HT:606338 PC: 1 CUSTOMER QTY: UOM  
MLT:GERMANY MFG:GERMANY SLB/CL:1639142

0008 33096 SMLS CD 4130 6736 3/4 OD X .083 WA 17/24 FT

CLN# ORD QTY INVOICE QTY SHIPPED QTY WT  
20.000 FT 20.333 FT 20.333 FT 12.022

PCS  
1

\*\* 1 TEST REPORTS REQUIRED \*\*

\*\* 1 CERTS REQUIRED \*\*

ECCN: 9A991.d Export License: NLR Expiration Date: 0/00/00  
PO:49365374 HT:603114 PC: 1 CUSTOMER QTY: UOM  
MLT:GERMANY MFG:GERMANY SLB/CL:1634562

BROKERS KUEHNE AND NAGEL LTD

AREA	TYPE OF PKG	PKGS	GRS WEIGHT	WIDTH	LENGTH	HGHT
YRC	REDDICRATE	1.000	221.000		24.5000	
YRC	REDDICRATE	1.000			20.5000	
		2.000	221.000			

BY: LM

THANK YOU FOR THIS ORDER

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O'Neal High-Performance Metals Group



Packing  
Slip

ORDER NO.: 80895542

FROM: CHIC

PAGE 4

CUST NUMBER: 1203820    NET WGT: 121.060    REQ.DATE: 11/28/17    CONFIRMED  
SOLD TO:    SHIP TO:  
DART AEROSPACE LTD    DART AEROSPACE LTD  
1270 ABERDEEN ST    1270 ABERDEEN ST  
HAWKESBURY ON    HAWKESBURY ON  
CANADA    CN K6A 1K7    ONTARIO CANADA    CN K6A 1K7

SALESPERSON: DONNA SMALLEY    SHIP BY: 11/22/17  
TERMS: NET 30 DAYS    VIA: COMMON CARRIER  
F.O.B.: SHIPPING POINT    FREIGHT: PREPAID  
CUST ORD NO.: PO038420    RELEASE NO.:  
RECEIVING PHONE:

LINE    ITEM DESCRIPTION    WIDTH    LENGTH  
RT 000-    UNLOAD TYPE: NONE SPECIFIED

808-10-4

DATE SHIPPED \_\_\_\_\_

DATE FILLED \_\_\_\_\_

1  
**THANK YOU FOR THIS ORDER**

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE  
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL  
REVIEW.  
<http://www.twmetals.com/invoice-terms.html>



O Neal High-Performance Metals Group



**Packing  
Slip**

ORDER NO.: 80895542

FROM: CHIC

PAGE 5

CUST NUMBER: 1203820	NET WGT: 121.060	REQ.DATE: 11/28/17	CONFIRMED
SOLD TO:	SHIP TO:		
DART AEROSPACE LTD	DART AEROSPACE LTD		
1270 ABERDEEN ST	1270 ABERDEEN ST		
HAWKESBURY ON	HAWKESBURY ON		
CANADA	CN K6A 1K7	ONTARIO CANADA	CN K6A 1K7

SALESPERSON:	DONNA SMALLEY	SHIP BY:	11/22/17
TERMS:	NET 30 DAYS	235 TUBEWAY	
F.O.B.:	SHIPPING POINT	CAROL STREAM	IL 60188
CUST ORD NO.:	PO038420		
VIA:	COMMON CARRIER		
FREIGHT:	PREPAID		
RELEASE NO.:			
RECEIVING PHONE:			

"TW Metals MSDS data is available on our web site at [www.twmetals.com](http://www.twmetals.com). MSDS data can be found under the Technical Resources Tab, Product Statistics & Data and the TW Metals MSDS's heading. If you do not have web site access you may telephone 610-458-1300 and we will mail or fax a copy of our current MSDS data to your location."

**"CERTIFICATE OF CONFORMANCE"**

"TW Metals certifies that the material supplied on this purchase order and contained in the heat/lot number referenced above has been manufactured, inspected, and tested in accordance with the material specification. These records are on file at TW Metals. Packaging material for shipments to Europe and China consists of manufactured wood products and complies with the European emergency measures for coniferous non-manufactured wood packing material"

Authorized Test Report Clerk *Luziraida Matos*

Date: 11/22/17

These commodities have been exported from the United States in accordance with the U.S. export control laws, export administrations regulations. Diversion contrary to U.S. law prohibited.

**THANK YOU FOR THIS ORDER**

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL REVIEW.  
<http://www.twmetals.com/invoice-terms.html>



Dart Hawkesbury  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER PO038420

**Supplier:** TWM001-VU  
TW Metals  
PO Box 933014  
Atlanta, GA 31193-3014 USA  
Phone: 585 768 5600  
Fax: 585 768 5601

**PO No:** PO038420  
**PO Date:** 11/20/17  
**Due Date:** 11/28/17  
**Purchase Order**  
**Revision:**  
**Revision Date:**  
**Ship-To Contact:** Phone:

**E-MAILED**  
NOV 20 2017

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Via:** Ground  
**Pymt Terms:** Net 30  
**Freight Terms:**  
**Special Comments:**

Items											
Line Item	Part	Rev	Description	Item Tax	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	M4130NT1.000W.120	-	4130 Round Tube 1.00 X .120Wall : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft		Firmed	11/28/17	20 ft	0 ft	20 ft	\$2.8858/ft	\$57.72
2	M304TR0.750W.049	-	304 Round Tube .750 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft		Firmed	11/28/17	160 ft	0 ft	160 ft	\$2.10/ft	\$336.00
3	M304TR0.500W.049	-	304 Round Tube .500 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft		Firmed	11/28/17	40 ft	0 ft	40 ft	\$2.80/ft	\$112.00
4	M6061T6T0.625W.065	-	6061-T6 Round Tube .625 X .065W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR		Firmed	11/28/17	36 ft	0 ft	36 ft	\$3.15/ft	\$113.40



Dart Hawkesbury  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER PO038420

Items											
Line Item	Part	Rev	Description	Item Tax	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
			ASTM B241 receive ft								
5	M6061T6T0.375W.058	-	6061-T6 Round Tube .375 X.058W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft		Firmed	11/28/17	24 ft	0 ft	24 ft	\$2.15/ft	\$51.60
								24 ft			
6	M6061T6T0.625W.125	-	6061-T6 Round Tube 0.625 X.125W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft		Firmed	11/28/17	12 ft	0 ft	12 ft	\$5.15/ft	\$61.80
								12 ft			
7	M4130NT0.750W.049	-	4130 Round Tube .750 X.049W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft		Firmed	11/28/17	24 ft	0 ft	24 ft	\$11.4754/ft	\$275.41
								24 ft			
8	M4130NT0.750W.083	-	4130 Round Tube .750 X.083W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft		Firmed	11/28/17	20 ft	0 ft	20 ft	\$3.85/ft	\$77.00
								20 ft			
Grand Total:											\$1,084.93

Grand Total: \$1,084.93

## Order Notes

### Procurement Quality Clauses

- A005 right of entry
- A012 chemical and physical test report
- A016 personnel qualification
- A017 raw material identification (as applicable)
- A026 certification of material conformance
- A041 quality management system



Dart Hawkesbury  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

## **PURCHASE ORDER PO038420**

### **Order Notes**

A042 dart notification by supplier

A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 11/20/17 2:08 PM DART.LAVOIE.CHANTAL

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13666

**BENTELER**   
Steel/Tube

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1**  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1  
EN 10204:2005-01

Benteler Steel/Tube GmbH - Postfach 1340 - 33043 Paderborn - Deutschland

TW Metals  
The Abbeium, Suite 204  
760 Constitution Drive  
EXTON PA 19341  
USA

Dokument-Nr.:	41-1023590/001/Z	Prüf-Nr.:		Blatt: 1 / 4
Document No.:		Inspection No.:		Page:
No. du document:		No. du certificat:		Page:
Kunden-Bestell-Nr.:	46005343 TW M49371988	Hersteller:	Warmrohrwerk/Zieherei	
Purchase Order No.:		Manufacturer:	IDIN EN ISO 8001, ISO/TS-16949 CERTIFIED BY TÜV NORD CERT	
No. de commande du client:		Producteur:	IPED 2014/89/EU CERTIFIED BY TÜV NORD SYSTEMS	
Benteler Auftrags-Nr.:	1639142	Herstellerzeichen:		
Benteler Order No.:		Manufacturer's brand:		
No. de commande Benteler:		Marque du producteur:		
Versandanzug-Nr.:	4114198	Stempel des Abnahmebeauftragten:	WA	
Dispatch Note No.:		Stamp of the inspection representative:		
No. d'avis d'expédition:		Poinçon du contrôleur:		
Produkt: NAHTLOSE STAHLROHRE		Stahlschmelzungsverfahren:	ELEKTROSTAHL	
Product: SEAMLESS STEEL TUBES		Steelmaking process:	ELECTRIC RUNNACE	
Produit: TUBES D'ACIER SANS SOUDURE		Procédé d'élaboration de l'acier:	FOUR ELECTRIQUE	

Lieferbedingungen: AMS-T-6736B-08 Type 1, ASTM-A 519-2006, MIL-T-6736B Type 1, AMS6360 Rev. M, AMS 2301K

Terms of delivery:  
Conditions de livraison:

Maße - Toleranzen: AMS 2253E-83, Aircraft Type, Seamless, Cold Finished

Dimensions-tolerances:  
Dimensions-tolérances:

Stahlsorte: GRADE 4130

Steel grade:  
Nuance d'acier:

Lieferzustand: Condition N

Delivery condition:  
État de livraison:

Produktkennzeichnung:

FSD: BENTELER AMS6360M-AMS-T-6736 B 1-MIL-T-6736 B 1-AMS 2301K 4130 Condition N HEAT-NO.  
CD AQ.S DIMENSIONS:WA GERMANY

Marquage du produit:

AZ = Aztekenbezeichnung, Etching ink-marking, Gravier à l'encre - FK = Farbmarkierung, color marking, marquage par couleur - FS = Fabrikbezeichnung, plant stamping, marquage par poinçon - FSD = Fabrikstempel, Code/la grille, imprimante à jet d'encre de couleur - LK = Laserkennzeichnung, laser marking, Marquage laser - PK = Etikettenkennzeichnung, tag marking, marquage sur étiquette - PS = Prägestempel, die stamp, marquage par poinçonage - TS = Tränenkennzeichnung, ink-jet spray marking, imprimante à jet d'encre -



KB



Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49.5254.81-0 Fax: +49.5254.13666

**BENTELER**

Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.:  
Document No.:  
No. du document:

41-1023590/001/Z

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

Blatt: 2 / 4  
Page:  
Page:

Pos.	Stück	Maße	Gesamtlänge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions	Length total	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions	Longueur totale	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
0025	216	1.000" O.D. * 0.120" WT 20 FT - 24 FT	4393,70	4912	606333			

Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

Pos.	Schmelzen-Nr.	C	SI	MIN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0025	606333	0,330	0,250	0,52	0,008	0,002	0,87	0,18	0,11	0,12

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

Pos.	Schmelzen-Nr.	C	SI	MIN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0025	606333	0,320	0,260	0,50	0,008	0,001	0,89	0,18	0,11	0,13

Prüfergebnisse / Test results / Résultats des essais

Die Rohre wurden zerstörungsfrei geprüft:  
The tubes are non-destructive tested:  
Les tubes ont passé un essai non destructif:

ET-test: acc. to ASTM-A 450; ET - Test method: acc. to ASTM-E 309; for imperfections;  
ET-test: ET with rotating pancake coils; according to EN 10246-3; imperfections;  
Notch depth: 0,30 mm; notch width < = notch depth; notch length min. 2 x transducer width (max. 50 mm)

Augensichtkontrolle:	PASSED	Materialverwechslungsprüfung:	PASSED	Maßkontrolle:	PASSED
Visual inspection:		Material conformity test:		Dimensions examination:	
Examen visuel:		Vérification de la nuance:		Vérification des dimensions:	

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probenahme erfolgte an Vielfachlängen.  
The sampling was carried out on multiple lengths.  
L'échantillonnage était réalisé aux longueurs multiples.

TW METALS REPORTS  
17 SEP 25 17  
ACCEPTED BY

46

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49 5254 81-0 Fax: +49 5254 13666

**BENTELER**  
Steel/Tube

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Page: Page:

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1**  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 41-1023590/001/Z  
Document No.: No. du document:

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

Zugversuch längs bei RT, Vollprobe / Tensile test longitudinal at RT, Full section test specimen / Essai de traction longitudinale à TA, Eprouvette a section complete

Pos. Item Poste	Proben-Nr. Specimen No. No. de l'éprouv.	Schmelzen-Nr. Heat No. No. de coulée	Probenabmessung Specimen dimensions Dimensions de l'éprouv.	Streckgrenze Yield strength Limite élastique	Zugfestigkeit Tensile strength Résistance à la traction	Dehnung Elongation Allongement
Anforderungen Requirements Exigences			mm	Rp 0,2 % KSI MIN 75	Rm KSI MIN 95	A2" % MIN 12.00
0025	000001	606333	25,40 X 3,00	100	118	24,00
0025	000002	606333	25,40 X 3,00	99	118	22,00
0025	000003	606333	25,40 X 3,00	100	118	22,00
0025	000004	606333	25,40 X 3,00	99	118	22,00
0025	000005	606333	25,40 X 3,00	99	118	24,00

Randentkohlung / Surface decarburization / Décarburation superficielle

Pos. / Item / Poste: 0025

acc. to AMS-6360, partial decarburization outside max. 0.017 in, partial decarburization inside max. 0.017 in, partial decarburization outside and inside max. 0.022 in, partial decarburization outside and inside max. 0.559 mm, without total decarburization; partial decarb. out. max.: 0.432 mm; partial decarb. ins. max.: 0.432 mm

Vermerk / Remark / Remarque

Pos. / Item / Poste: 0025

Certificate remarks: The steel grade corresponds to MIL-T-6736B, AMS-6360M, material free from mercury contamination, FAR BAA: 52.225-1 CANNOT COMPLY, DFARS BAA: 252.225-7001 CAN COMPLY, FAR TAA: 52.225-5 CAN COMPLY, No weld repair has been carried out, Country of origin of the material and heat: Germany, Aircraft quality steel acc. to AMS 2301K / Semi finished product examination, see appendix page 1 of 1

Pos. / Item / Poste: 0025

Macroscopic examination: acc. to ASTM-E 381

Pos. / Item / Poste: 0025

Magnetic particle inspection: acc. to AMS-2301K/ASTM-E 1444, on prematerial

Pos. / Item / Poste: 0025

Grain size: acc. to ASTM-E 112; Grain size and fineness: 5; Grain size: Longitudinal structure microscopy, on prematerial

Verkäufer(in) / Sales Personnel / Personne chargée : Mr Schwarz, Tel.: 05254 81-204311, Fax: 204391



AS

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: +49 5254 81-0 Fax: +49 5254 13665

**BENTELER**

Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1

INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.:  
Document No.:  
No. du document:

41-1023590/001/Z

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

Blatt: 4 / 4  
Page:  
Page:

Paderborn Schloß Neuhaus, 21.08.2017, TEL.: 05254.81-201766 FAX: 05254.81-201752

Abnahmebeauftragter  
Inspection representative  
Contrôleur

I. A. THOMAS GOLLAN / ICK

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.  
We certify that the supplied products comply with the order specifications. This document was prepared by means of electronic data processing and is valid without signature.  
Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.



1/5

Benteler Steel/Tube GmbH  
Residenzstraße 1  
33104 Paderborn  
Germany  
Tel.: 49.5254.81-0 Fax: 49.5254.13668

**BENTELER**  
Steel/Tube

Abnahmeprüfzeugnis EN 10204-3.1 / Anhang  
Inspection Certificate EN 10204.3.1 / appendix  
Certificat de réception EN 10204-3.1 / appendice

Dokument-Nr.  
Document No.:  
No. de document

41-1023590/001/Z

Blatt: von  
Page: 1 of 1  
Page: de

Halbzeuguntersuchung: Stahlsorte: 4130 / Semi-finished product examination: grade 4130 / Produit semi-fini: nuance 4130

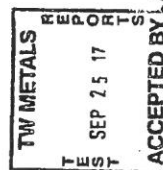
Schmelzen-Nr. Heat No. Coulée No.	Position Item Poste	Korngröße Grain size Grosseur de grain (ASTM-E 112)	Härtbarkeit (min. Anforderungen) Hardenability (min. requirements) Trempeabilité (exigence min.) (ASTM-A 255)		Magnetpulverprüfung Magnetic particle inspection Essai à la poudre magnétique (AMS 2301 K/ASTM- 1444)		Makroätzung Macrostructure test Essai de macrostructure (ASTM-E 381)		
			J(5/16") min. 35 HRC	J(8/16") min. 28 HRC	F max. 0,34	S max. 0,25	max. S 2	max R:1	max. C 2
606333  Decarburization Depth	025	min. 5	43	34	0,020	0,020	S 2	R 1	C 2
		Outside 0,045 mm	Inside 0,000 mm						

Der Stahl ist frei von Quecksilberverunreinigungen. / The steel is free of mercury contamination. / L'acier est libre des contaminations de mercure.

Paderborn Schloß Neuhaus, 21.08.2017  
Tel.: (0)5254.81-201760 Fax: (0)5254.81-201752

Abnahmebeauftragter  
Inspection representative  
Contrôleur

Thomas Gollan



AS

## MILL TEST REPORT

Purchaser.: TW METALS-Carol Stream				Certificate No.: 2017-6-59					
Contract No.: TWMP.O.No.: M49363338				Date of Issue.: 2017.6.12					
Commodity: Stainless Steel Seamless Tubes		Specifications: ASTM A213-15c/ASME SA213-15/ASTM A269-15a EAW		Process: Cold Drawn		Delivery Condition: OD Polished to 240 Grit			
Steel Grade	Heat Number	Lot Number	Dimensions	Quantity					
				Pieces	Feet				
TP304/TP304L	YX1108-593	3-82	3/4"x0.049"x20'	250	5,000				
Chemical Composition by Weight (%)									
Element	C	Mn	P	S	Si	Cr	Ni	Mo	Co
Requirements	≤0.035	≤2.00	≤0.045	≤0.030	≤1.00	18.00-20.00	8.00-12.00	-	-
Ladle Analysis	0.023	0.70	0.032	0.001	0.36	18.50	8.05	-	-
Product Analysis	0.020	0.67	0.034	0.002	0.34	18.67	8.13	-	-
Mechanical Properties									
Test Item	Elongation (% in 2")		Tensile Strength (PSI) Rm		Yield Strength (PSI) Rp / 0.2%				
Requirements	≥35		≥75,000		≥30,000				
Test Results	63/64		97,000/98,000		41,000/42,000				
Test Item	Reduction of Area Z (%)	Hardness	Cold Bend Test	Flaring Test	Flattening Test	Flange Test	P.M.I. Test		
Requirements	-	HRB≤80	-	22%	e=0.09	-	-		
Test Results	-	76/78	-	Passed	Passed	-	OK		
Test Item	Eddy Current Test	Air Underwater Pressure Test	Ultrasonic Test	Intergranular Corrosion Test	Macroscopic Inspection				
Requirements	ASTM E 426	-	-	ASTM A262 E	End Cut	Appearance			
Test Results	Passed	-	-	OK	OK	OK			

ISO 9001:2008 Certified by CAS 117 16 QU 0053-06 ROS

PED Certified by SZUTEST 2195-PED-1526002

## Additional Remarks:

- (1) All tubes annealed to above 1900 Deg F and water quenched below 800 Deg F in 3 minutes
- (2) All tubes tested per ASTM A1016-14
- (3) Materials is NACE MR0103-2007 compliant (per Section 2.5)
- (4) Materials is NACE MR0175/ISO 15156-2003 compliant (per Section 4.2.1)
- (5) In Compliance with EN 10204-3.1
- (6) In Compliance with RoHS Stipulation
- (7) No weld repair performed
- (8) Free from mercury contamination
- (9) Free from radioactive contamination
- (10) Billets melt and pipes/tubes manufactured in China
- (11) All tubes 100% PMI tested
- (12) All tubes 100% Eddy Current tested



CANNOT CERTIFY COMPLIANCE  
FAR BAA / DFARS BAA / FAR TAA



By:

James Shi

James Shi / Manager

Quality Control Department

We hereby certify that this report is true and correct.

Jiangsu Pufa Stainless Steel Tube Co., Ltd.

No. 99, Xuean Middle Road, Dongchen Town, Rugao City, Jiangsu Province, P.R.China

16

## MILL TEST REPORT

Purchaser.: TW METALS-Carol Stream				Certificate No.: 2017-3-30					
Contract No.: TWM P.O.No.: M49361319				Date of Issue.: 2017.3.25					
Commodity: Stainless Steel Seamless Tubes				Specifications: ASTM A213-15c/ASME SA213-15/ASTM A269-15a EAW					
Process: Cold Drawn				Delivery Condition: OD Polished to 240 Grit					
Steel Grade	Heat Number	Lot Number	Dimensions	Quantity					
				Pieces	Feet				
TP304/TP304L	YX1604-531	1-64	1/2"x0.049"x20'	2000	40,000				
Chemical Composition by Weight (%)									
Element	C	Mn	P	S	Si	Cr	Ni	Mo	Co
Requirements	≤0.035	≤2.00	≤0.045	≤0.030	≤1.00	18.00-20.00	8.00-12.00	-	-
Ladle Analysis	0.017	1.20	0.034	0.001	0.33	18.20	8.05	-	-
Product Analysis	0.017	1.25	0.030	0.002	0.32	18.31	8.12	-	-
Mechanical Properties									
Test Item	Elongation (% in 2")		Tensile Strength (PSI) Rm		Yield Strength (PSI) Rp / 0.2%				
Requirements	≥35		≥75,000		≥30,000				
Test Results	61/62		97,000/98,000		42,000/43,000				
Test Item	Reduction of Area Z (%)	Hardness	Cold Bend Test	Flaring Test	Flattening Test	Flange Test	P.M.I. Test		
Requirements	-	HRB≤80	-	22%	e=0.09	-	-		
Test Results	-	77/79	-	Passed	Passed	-	OK		
Test Item	Eddy Current Test	Air Underwater Pressure Test	Ultrasonic Test	Intergranular Corrosion Test	Macroscopic Inspection				
Requirements	ASTM E 426	-	-	ASTM A262 E	End Cut	Appearance			
Test Results	Passed	-	-	OK	OK	OK			

ISO 9001:2008 Certified by CAS 117 16 QU 0053-06 ROS

PED Certified by SZUTEST 2195-PED-1526002

## Additional Remarks:

- (1) All tubes annealed to above 1900 Deg F and water quenched below 800 Deg F in 3 minutes
- (2) All tubes tested per ASTM A1016-14
- (3) Materials is NACE MR0103-2007 compliant (per Section 2.5)
- (4) Materials is NACE MR0175/ISO 15156-2003 compliant (per Section 4.2.1)
- (5) In Compliance with EN 10204-3.1
- (6) In Compliance with RoHS Stipulation
- (7) No weld repair performed
- (8) Free from mercury contamination
- (9) Free from radioactive contamination
- (10) Billets melt and pipes/tubes manufactured in China
- (11) All tubes 100% PMI tested
- (12) All tubes 100% Eddy Current tested

**CANNOT CERTIFY COMPLIANCE  
FAR BAA / DFARS BAA / FAR TAA**



By:

James Shi

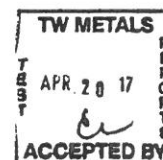
James Shi / Manager

Quality Control Department

We hereby certify that this report is true and correct.

Jiangsu Pufa Stainless Steel Tube Co., Ltd.

No. 99, Xuean Middle Road, Dongchen Town, Rugao City, Jiangsu Province, P.R.China



C



# KAISER ALUMINUM FABRICATED PRODUCTS

## CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: M49369003-1		CUSTOMER PART NUMBER: 42558-144		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 223156	LINE ITEM: 001	SHIP DATE: 05/22/2017	KAISER LOT NUMBER: F00240838	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 610.000 LB	QUANTITY: 379.000 PCS	B/L NUMBER: 225370	DIAM/DAF/THKNS:	WIDTH:	LENGTH: 12.000 FT
SHIP TO:  TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO:  TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

### Actual Physical Properties

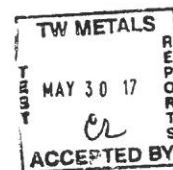
REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON% IACS	BEND
F00240838	0001	1	47.2	40.8	19.5	N/A	N/A	N/A
F00240838	0002	1	46.9	40.7	19.0	N/A	N/A	N/A

### Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D20128	.59	.30	.22	.05	1.03	.10	.04	.03	.00	.00	.00	.01	.03

### Applicable Requirements:

Description: OD: 0.6250"; Wall: 0.0650"; Round @  
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F  
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.  
This Product Complies to FAR BAA, DFARS BAA, FAR TAA  
COMPLIES TO DIN EN 10204 JAN 2005  
No Weld Repair. Mercury Free.



### Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA  
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA  
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5  
TRADE AGREEMENTS).

Plant Serial: 00025044  
Kaiser Order Number: 223156  
Line Item: 001

**KAISER**  
**ALUMINUM**  
**FABRICATED PRODUCTS**

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226


**CERTIFIED TEST REPORT**

<http://Online.KaiserAluminum.com>

**CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager



Plant Serial: 00025044  
Kaiser Order Number: 223156  
Line Item: 001

# KAISER ALUMINUM FABRICATED PRODUCTS

## CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: M49376296-1		CUSTOMER PART NUMBER: 41952		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 224194	LINE ITEM: 001	SHIP DATE: 09/23/2017	KAISER LOT NUMBER: F00250486	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 474.000 LB	QUANTITY: 585.000 PCS	B/L NUMBER: 226892	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO:  TW-METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO:  TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

### Actual Physical Properties

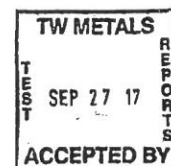
REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00250486	0001	1	48.0	41.5	17.0	N/A	N/A	N/A

### Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D20419	.61	.27	.21	.04	.98	.09	.05	.03	.00	.00	.00	.01	.02

### Applicable Requirements:

Description: OD: 0.3750"; Wall: 0.0580"; Round @  
AMS4082P AMS-WW-T-700/6C ASTM B210-12  
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.  
This Product Complies to FAR BAA, DFARS BAA, FAR TAA  
COMPLIES TO DIN EN 10204 JAN 2005  
No Weld Repair. Mercury Free.



### Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA  
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA (DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5 TRADE AGREEMENTS).

Plant Serial: 00026215  
Kaiser Order Number: 224194  
Line Item: 001

# **KAISER**

## **ALUMINUM**

### **FABRICATED PRODUCTS**

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

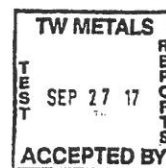
## **CERTIFIED TEST REPORT**

<http://Online.KaiserAluminum.com>

### **CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager



Plant Serial: 00026215  
Kaiser Order Number: 224194  
Line Item: 001



# KAISER ALUMINUM FABRICATED PRODUCTS

## CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: M49370848-1		CUSTOMER PART NUMBER: 42588		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 223458	LINE ITEM: 001	SHIP DATE: 06/27/2017	KAISER LOT NUMBER: F00243635	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 788.000 LB	QUANTITY: 284.000 PCS	B/L NUMBER: 225879	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO:  TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO:  TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

### Actual Physical Properties

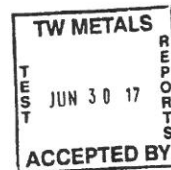
REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00243635	0001	1	48.7	42.1	20.0	N/A	N/A	N/A
F00243635	0002	1	49.7	43.0	19.0	N/A	N/A	N/A

### Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D30206	.59	.29	.22	.03	.98	.07	.04	.03	.00	.00	.00	.01	.02

### Applicable Requirements:

Description: OD: 0.6250"; Wall: 0.1250"; Round @  
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F  
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.  
This Product Complies to FAR BAA, DFARS BAA, FAR TAA  
COMPLIES TO DIN EN 10204 JAN 2005  
No Weld Repair. Mercury Free.



### Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA  
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA  
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5  
TRADE AGREEMENTS).

Plant Serial: 00025411  
Kaiser Order Number: 223458  
Line Item: 001

16

**KAISER**  
**ALUMINUM**  
**FABRICATED PRODUCTS**

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

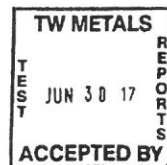
**CERTIFIED TEST REPORT**

<http://Online.KaiserAluminum.com>

**CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager



AB



Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: + 49.5254.81-0 Fax: + 49.5254.13666

# BENTELER

## Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1  
EN 10204:2005-01

Benteler Steel/Tube GmbH - Postfach 1340 - 33043 Paderborn - Deutschland

TW Metals  
The Aboretum, Suite 204  
760 Constitution Drive  
EXTON PA 19341  
USA

Dokument-Nr.: 41-1026599/001/P

Document No.:  
No. du document:

Kunden-Bestell-Nr.:  
Purchase Order No.:  
No. de commande du client:

Benteler Auftrags-Nr.:  
Benteler Order No.:  
No. de commande Benteler:

Versandanzeigen-Nr.:  
Dispatch Note No.:  
No. d'avis d'expédition:

Produkt: NAHTLOSE STAHLROHRE  
Product: SEAMLESS STEEL TUBES  
Produit: TUBES D'ACIER SANS SOUDURE

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

Hersteller:  
Manufacturer:  
Producteur:

Herstellerzeichen:  
Manufacturer's brand:  
Marque du producteur:

Stempel des Abnahmebeauftragten:  
Stamp of the inspection representative:  
Poinçon du contrôleur:

Stahlschmelzungsverfahren:  
Steelmaking process:  
Procédé d'élaboration de l'acier:

AMS-T-6736B-08 Type 1, ASTM-A 519-2006, MIL-T-6736B Type 1, AMS6360 Rev. M, AMS 2301K

Lieferbedingungen:  
Terms of delivery:

Maße - Toleranzen:  
Dimensions-tolerances:

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Dimensions-tolerances:

Maße - Toleranzen:  
Dimensions-tolerances:

FSD: BENTELER AMS6360M-AMS-T-6736 B 1-MIL-T-6736 B 1-AMS 2301K 4130 Condition N HEAT-NO.  
CD AQ S DIMENSIONS WA GERMANY

Marquage du produit:

AEZ = Argentinienbeschriftung, Etching ink marking, Gravure à l'encre . RK = Farbkennzeichnung, color marking, marquage par couleur . PS = Probektempe, die stamp, marquage par poinçonnage . TS = Tintenstrahlkennzeichnung, ink jet spray marking, imprimante à jet d'encre .

Pos.	Stück	Maße	Gesamtlänge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions	Length total	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions	Longueur totale	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
0012	153	0.750" O.D. * 0.049" WT 20 FT - 24 FT	3664,37 feet	1345 lbs	606338			

TW METALS  
RECEIVED  
SEP 27 17  
3 3 T  
ACCEPTED BY

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: + 49.5254.81-0 Fax: + 49.5254.13666

**BENTELER**

Steel/Tube

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Page:

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1**  
**INSPECTION CERTIFICATE EN 10204-3.1**  
**CERTIFICAT DE RECEPTION EN 10204-3.1**

Dokument-Nr.: 41-1026599/001/P  
Document No.:  
No. du document:

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

Pos.	Schmelzen-Nr.	C	Si	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0012	606338	0,320	0,220	0,53	0,006	0,002	0,90	0,18	0,08	0,10

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

Pos.	Schmelzen-Nr.	C	Si	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0012	606338	0,310	0,230	0,53	0,007	0,002	0,90	0,18	0,07	0,10

Prüfergebnisse / Test results / Résultats des essais

Die Rohre wurden zerstörungsfrei geprüft:

The tubes are non destructive tested:

Les tubes ont passé un essai non destructif:

ET-test: acc. to ASTM-A 450; ET - Test method: acc. to ASTM-E 309; for imperfections;

ET-test: ET with rotating pancake coils; according to EN 10246-3; imperfections;

Notch depth: 0,30 mm; notch width < = notch depth; notch length min. 2 x transducer width (max. 50 mm)

PASSED

Augensichtkontrolle:

Visual inspection:

Examen visuel:

PASSED

Materialverwechslungsprüfung:

Material conformity test:

Vérification de la nuance:

PASSED

Maßkontrolle:

Dimensions examination:

Vérification des dimensions:

PASSED

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probennahme erfolgte an Vielfachlängen.

The sampling was carried out on multiple lengths.

L'échantillonnage était réalisé aux longueurs multiples.

Zugversuch längs bei RT, Vollprobe / Tensile test longitudinal at RT, Full section test specimen / Essai de traction longitudinale à TA, Eprouvette a section complete

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement
Anforderungen				Rp 0,2 %	Rm	A2"
Requirements				KSI	KSI	%
Exigences			mm	MIN 75	MIN 95	MIN 12,00
0012	000001	606338	19,05 X	1,26	126	18,00
0012	000002	606338	19,05 X	1,26	127	20,00



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Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: + 49.5254.81-0 Fax: + 49.5254.13668

# BENTELER

## Steel/Tube

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Page: Page:

ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Zugversuch längs bei RT, Vollprobe / Tensile test longitudinal at RT, Full section test specimen / Essai de traction longitudinale à TA, Eprouvette à section complète

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement
Anforderungen			mm	Rp 0.2 %	Rm	A2"
Requirements				KSI	MIN 95	%
Exigences				MIN 75	MIN 12.00	1. Formule
0012	000003	606338	19,05 X	1,26	126	19,00
0012	000004	606338	19,05 X	1,26	126	19,00
0012	000005	606338	19,05 X	1,26	126	19,00

Randentkohlung / Surface decarburization / Décarburation superficielle

Pos. / Item / Poste: 0012  
acc. to AMS-6360, partial decarburization outside max. 0.009 in, partial decarburization inside max. 0.009 in, partial decarburization outside and inside max. 0.012 in, partial decarburization outside and inside max. 0.305 mm, without total decarburization; partial decarb. out. max.: 0.229 mm; partial decarb. ins. max.: 0.229 mm

Vermerk / Remark / Remarque

Pos. / Item / Poste: 0012  
Certificate remarks: The steel grade corresponds to MIL-T-6736B, AMS 6360M, material free from mercury contamination, FAR BAA: 52.225-1 CANNOT COMPLY, DFAPS BAA: 252.225-7001 CAN COMPLY, FAR TAA: 52.225-5 CAN COMPLY, No weld repair has been carried out, Country of origin of the material and heat: Germany, Aircraft quality steel acc. to AMS 2301K; see appendix page 1 of 1.

Pos. / Item / Poste: 0012  
Macroscopic examination: acc. to ASTM-E 381

Pos. / Item / Poste: 0012  
Magnetic particle inspection: acc. to AMS 2301K/ASTM-E 1444, on prematerial

Pos. / Item / Poste: 0012  
Grain size: acc. to ASTM-E 112; Grain size and finer: 5; Grain size: Longitudinal structure micrography, on prematerial

Verkäufer(in) / Sales Personnel / Personne chargée: Mr Schwarz, Tel.: 05254 81-204311, Fax: 204391

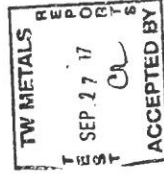
Paderborn Schloß Neuhaus, 06.09.2017, TEL.: 05254.81-201768 FAX: 05254.81-201752

Abnahmebeauftragter  
Inspection representative

Contrôleur

I. A. THOMAS GOLLAN / Tat

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.  
We certify that the supplied products comply with the order specifications. This document was prepared by means of electronic data processing and is valid without signature.  
Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.



Benteler SteelTube GmbH  
Residenzstraße 1  
33104 Paderborn  
Germany  
Tel.: 49 5254 81-0 Fax: 49 5254 13886

**BENTELER**  
Steel/Tube

Abnahmeprüfzeugnis EN 10204-3.1 / Anhang  
Inspection Certificate EN 10204.3.1 / appendix  
Certificat de réception EN 10204-3.1 / appendice

Dokument-Nr.:  
Document No.:  
No. de document:

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Page: 1 of 1  
Page: de

Halbzeuguntersuchung: Stahlsorte 4130 / Semi finished product examination: grade 4130 / Produit semi-fini: nuance 4130

Schmelzen-Nr. Heat No. Coulée No.	Position Item Poste	Korngröße Grain size Grossueur de grain (ASTM-E 112)	Härtebarkeit (min. Anforderungen) Trempeabilité (exigence min.) (ASTM-A 255)		Magnetpulverprüfung Magnetic particle inspection Essai à la poudre magnétique (AMS 2301 K/ASTM- 1444)		Makroätzung Macrostructure test Essai de macrostructure (ASTM-E 381)		
		min. 5	J(5/16") min. 35 HRC	J(8/16") min. 28 HRC	F max. 0,34	S max. 0,25	max. S 2	max. R 1	max. C 2
606338	012	9-10	37	33	0,020	0,020	S 2	R 1	C 2
Decarburization Depth		Outside 0,000 mm Inside 0,000 mm							

Der Stahl ist frei von Quecksilberverunreinigungen. / The steel is free of mercury contamination. / L'acier est libre des contaminations de mercure.

Paderborn Schloß Neuhaus, 06.09.2017  
Tel.: (0)5254 81-201760 Fax: (0)5254 81-201752

Abnahmebeauftragter  
Inspection representative  
Contrôleur

Thomas Gollan



Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: + 49.5254.81-0 Fax: + 49.5254.13666

# BENTELER

## Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1  
EN 10204:2009-01

Benteler Steel/Tube GmbH - Postfach 1340 - 33043 Paderborn - Deutschland

TW Metals  
The Aboretum, Suite 204  
760 Constitution Drive  
EXTON PA 19341  
USA

Dokument-Nr.: 41-1007237/001/P  
Document No.:  
No. du document:  
Kunden-Bestell-Nr.: 46004962TW M49365374  
Purchase Order No.:  
No. de commande du client:

Benteler Auftrags-Nr.: 1634562  
Benteler Order No.:  
No. de commande Benteler:  
Versandanzeigen-Nr.: 4195453  
Dispatch Note No.:  
No. d'avis d'expédition:

Produkt: NAHTLOSE STAHLROHRE  
Product: SEAMLESS STEEL TUBES  
Produit: TUBES D'ACIER SANS SOUDURE

Hersteller: Warmrohrwerk/Zieherei  
Manufacturer: [DIN EN ISO 9001, ISO 9001:1994 CERTIFIED BY TÜV NORD CERT]  
Producteur: [PED 2014/68/EU CERTIFIED BY TÜV NORD SYSTEMS]

Herstellerzeichen:  
Manufacturer's brand:  
Marque du producteur:  
Stempel des Abnahmebeauftragten: WA  
Stamp of the inspection representative:  
Poinçon du contrôleur:

Stahlschmelzungsverfahren: ELEKTROSTAHL  
Steelmaking process: ELECTRIC FURNACE  
Procédé d'élaboration de l'acier: FOUR ELECTRIQUE



Lieferbedingungen: AMS-T-6736B-08 Type 1, ASTM-A 519-2006 (MIL-T-6736B) Type 1, AMS 6360 Rev. M, AMS 2301K

Terms of delivery:

Conditions de livraison:

Maße - Toleranzen:

Dimensions-tolerances:

Dimensions-tolérances:

Stahlsorte:

Steel grade:

Nuance d'acier:

Lieferzustand:

Delivery condition:

État de livraison:

Produktkennzeichnung:

Product marking:

Marquage du produit:

AEZ = Ätzlinienbeschriftung, Etching ink marking, Gravure à l'encre, FK = Farbkennzeichnung, color marking, marquage par couleur, PS = Farbschablonierung, paint stencilling, marquage par peinture, PSD = Farostrandrucker, Color jet printer, Imprimante à jet d'encre de couleur, UK = Leserkennzeichnung, Laser marking, Marquage laser, PKE = Etikettenszeichnung, tag marking, marquage sur étiquette, PS = Prägestempel, die stamp, marquage par poinçonnage, TS = Tintenstrahlkennzeichnung, ink jet spray marking, imprimante à jet d'encre.

FSD: BENTELER AMS6360M-AMS-T-6736 B 1-MIL-T-6736 B 1-AMS 2301K 4130 Condition N HEAT-NO.

CD AQ S DIMENSIONS WA GERMANY

Pos.	Stück	Maße	Gesamtlänge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions	Length total	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions	Longueur totale	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
0012 91		0.750" O.D. * 0.083" WT 20 FT - 24 FT	1851,05 feet	1080 lbs	603114			

Benteler Steel/Tube GmbH  
Postfach 13 40  
33043 Paderborn  
Deutschland  
Tel.: + 49 5254.81-0 Fax: + 49 5254.13666

**BENTELER**  
Steel/Tube

**ABNAHMEPRÜFZEUGNIS EN 10204-3.1**

INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 41-1007237/001/P  
Document No.:  
No. du document:

Prüf-Nr.:  
Inspection No.:  
No. du certificat:

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Page:  
Page:

**Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]**

Pos.	Schmelzen-Nr.	C	Si	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0012	603114	0,310	0,240	0,56	0,005	0,001	0,87	0,17	0,08	0,11

**Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]**

Pos.	Schmelzen-Nr.	C	Si	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0012	603114	0,300	0,230	0,53	0,006	0,001	0,87	0,17	0,08	0,11

**Prüfergebnisse / Test results / Résultats des essais**

Die Rohre wurden zerstörungsfrei geprüft:  
The tubes are non destructive tested:  
Les tubes ont passé un essai non destructif:  
ET-test: acc. to ASTM-A 450; ET - Test method: acc. to ASTM-E 309; for imperfections;  
ET-test: ET with rotating pancake coils; according to EN 10246-3; Imperfections;  
Notch depth: 0.30 mm; notch width < = notch depth; notch length min. 2 x transducer width (max. 50 mm)

PASSED

**Augensichtkontrolle:**

Visual inspection:

Examen visuel:

PASSED

Materialverwechslungsprüfung:

Material conformity test:

Vérification de la nuance:

PASSED

Maßkontrolle:

Dimensions examination:

Vérification des dimensions:

PASSED

**Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques**

Die Probennahme erfolgte an Vielfachlängen.  
The sampling was carried out on multiple lengths.  
L'échantillonnage était réalisé aux longueurs multiples.

Zugversuch längs bei RT, Vollprobe / Tensile test longitudinal at RT, Full section test specimen / Essai de traction longitudinale à TA, Eprouvette a section complete

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement
Anforderungen			Rp 0,2 %	Rm	A2*	1. Formel
Requirements			mm	KSI	%	1. Formule
Exigences			MIN 75	MIN 95	MIN 12.00	1. Formule
0012	000001	603114	19,04 X 2,12	103	123	20,00
0012	000002	603114	19,04 X 2,12	103	123	18,00





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Deutschland  
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# BENTELER

Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1  
INSPECTION CERTIFICATE EN 10204-3.1  
CERTIFICAT DE RECEPTION EN 10204-3.1

Zugversuch längs bei RT, Vollprobe / Tensile test longitudinal at RT, Full section test specimen / Essai de traction longitudinale à TA, Eprouvette a section complete

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement
Anforderungen				Rp 0,2 %	Rm	A2*
Requirements			mm	KSI	KSI	%
Exigences				MIN 75	MIN 95	MIN 12.00
0012	000003	603114	19,04 X 2,12	102	123	18,00

## Randentkohlung / Surface decarburization / Décarburation superficielle

acc. to AMS-6360, partial decarburization outside max. 0.014 in, partial decarburization inside max. 0.014 in, partial decarburization outside and inside max. 0.018 in, partial decarburization outside and inside max. 0.457 mm, without total decarburization; partial decarb. out. max.: 0,356 mm; partial decarb. ins. max.: 0,356 mm

## Vermerk / Remark / Remarque

Certificate remarks: The steel grade corresponds to MIL-T-6736B, AMS 6360M, material free from mercury contamination, FAR BAA: 52.225-1 CANNOT COMPLY, DFARS BAA: 252.225-7001 CAN COMPLY, FAR TAA: 52.225-5 CAN COMPLY, No weld repair has been carried out, Country of origin of the material and heat: Germany. Aircraft quality steel acc. to AMS 2301K; see appendix page 1 of 1.

Macroscopic examination: acc. to ASTM-E 381

Magnetic particle inspect.: acc. to AMS 2301K/ASTM-E 1444, on prematerial

Grain size: acc. to ASTM-E 112; Grain size and finer: 5; Grain size: Longitudinal structure micrography, on prematerial

Verkäufer(in) / Sales Personnel / Personne chargée: Mr Schwarz, Tel.: 05254 81-204311, Fax: 204391



Paderborn Schloß Neuhaus, 28.05.2017, TEL.: 05254.81-201768 FAX: 05254.81-201752

Abnahmebeauftragter  
Inspection representative

Contrôleur

i. A. THOMAS GOLLAN / Tat

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.  
We certify that the supplied products comply with the order specification. This document was prepared by means of electronic data processing and is valid without signature.  
Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.

Benteler Steel/Tube GmbH  
Residenzstraße 1  
33104 Paderborn  
Germany  
Tel.: 49.5254.81-0 Fax: 49.5254.13666

**BENTELER**  
Steel/Tube

Abnahmeprüfzeugnis EN 10204-3.1 / Anhang  
Inspection Certificate EN 10204.3.1 / appendix  
Certificat de réception EN 10204-3.1 / appendice

Dokument-Nr.  
Document No.:  
No. de document:

41-1007237/001/P

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Page: 1 of 1  
Page: de

Halbzeuguntersuchung: Stahlsorte 4130 / Semi finished product examination: grade 4130 / Produit semi-fini: nuance 4130

Schmelzen-Nr. Heat No. Coulée No.	Position Item Poste	Korngröße Grain size Grosseur de grain (ASTM-E 112)	Härbarkeit (min. Anforderungen) Hardenability (min. requirements) Trepabilité (exigence min.) (ASTM-A 255)		Magnetpulverprüfung Magnetic particle inspection Essai à la poudre magnétique (AMS 2301 K/ASTM- 1444)	Makroätzung Macrostructure test Essai de macrostructure (ASTM-E 381)		
			J(5/16") min. 35 HRC	J(8/16") min. 28 HRC		max. S 2	max. R 1	max. C 2
603114  Decarburization Depth	012	min. 5			F max. 0,34	S max. 0,25		
		9  Outside 0,000 mm	40  Inside 0,000 mm	32	0,020	0,015	R 1	C 2

Der Stahl ist frei von Quecksilberverunreinigungen. / The steel is free of mercury contamination. / L'acier est libre des contaminations de mercure.

Paderborn Schloß Neuhaus, 29.05.2017  
Tel.: (0)5254.81-201760 Fax: (0)5254.81-201752

Abnahmebeauftragter  
Inspection representative  
Contrôleur  
Thomas Gollan



# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130NTO.750W.083  
 DATE: DEC 05 2017

PO / BATCH NO.: 038420/5017143

MATERIAL CERT REC'D: yes  
 QUANTITY RECEIVED: 20'  
 QUANTITY INSPECTED: 20'  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: .750  
 THICKNESS RECEIVED: .750  
 SHEET SIZE ORDERED: N/A  
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	Y (N)	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	Y (N)	
CORRECT MATERIAL PER M-DRAWING	Y (N)	<u>mil-F67360</u>
CORRECT THICKNESS	Y (N)	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	Y (N)	<u>Heat # 603114</u>
CORRECT MATERIAL IDENTIFICATION	Y (N)	
CORRECT M# ON THE MATERIAL	Y (N)	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

*testers located in the Quality Office*

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>[Signature]</u>	SIGNED OFF BY: _____		
DATE: <u>DEC 05 2017</u>	DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 4130N SEAMLESS STEEL TUBING  
SPECIFICATION: MIL-T-6736 OR AMS 6371, 6360, 6361, 6362, 6373, 6374  
PART NUMBER: M4130N TO DDD W. TTT WHERE: "D,DDD" = OUTER DIAMETER (IN INCHES)  
AND "TTT" = WALL THICKNESS (IN INCHES)  
DIA. WALL

EG. 3/4" TUBING WITH .035" WALL = M4130NT0.750W.035

RELEASE  
2012-04-16  
ANN

B		REFORMAT DWG TO ACCOMMODATE ADDITIONAL TUBE DIAMETERS AND WALL THICKNESS		RP	12.04.02
A		NEW ISSUE		JB	01.05.16
REV.		DESCRIPTION		BY	DATE
DESIGN		DART AEROSPACE LTD			
DRAWN		RP		HAWKESBURY, ONTARIO, CANADA	
CHECKED		AP		REV. B	
MFG. APPR.		M4130N-T		SHEET 1 OF 1	
APPROVED		TITLE		SCALE	
DE APPR.		STEEL TUBING		NTS	
DATE		12.04.02			

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# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130W-0.750W-049  
 DATE: DEC 05 2017

PO / BATCH NO.: 038420/5017142

MATERIAL CERT REC'D: yes  
 QUANTITY RECEIVED: 24'  
 QUANTITY INSPECTED: 24'  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: .750  
 THICKNESS RECEIVED: .750  
 SHEET SIZE ORDERED: N/A  
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<u>(N)</u>	
CORRECT FINISH	<u>(Y)</u>	N	
CORROSION	Y	<u>(N)</u>	
CORRECT GRAIN DIRECTION	<u>(Y)</u>	N	
CORRECT MATERIAL PER M-DRAWING	<u>(Y)</u>	N	<u>mil-t-6736B</u>
CORRECT THICKNESS	<u>(Y)</u>	N	
PHOTO REQUIRED	Y	<u>(N)</u>	
CORRECT REF # TO LINK CERT	<u>(Y)</u>	N	<u>Heat # 606338</u>
CORRECT MATERIAL IDENTIFICATION	<u>(Y)</u>	N	
CORRECT M# ON THE MATERIAL	<u>(Y)</u>	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<u>(N)</u>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<u>(N)</u>	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AL</u> <span style="float: right;">DAS</span> DATE: <u>DEC 05 2017</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 4130N SEAMLESS STEEL TUBING  
SPECIFICATION: MIL-T-6736 OR AMS 6371, 6360, 6361, 6362, 6373, 6374  
PART NUMBER: M4130N TO DDD W.TTT WHERE: "DDD" = OUTER DIAMETER (IN INCHES)  
AND "TTT" = WALL THICKNESS (IN INCHES)

EG. 3/4" TUBING WITH .035" WALL = M4130NTO.750W.035

RELEASE  
R 2012-04-16

B	REFORMAT DWG TO ACCOMMODATE ADDITIONAL TUBE DIAMETERS AND WALL THICKNESS	RP	12.04.02
A	NEW ISSUE	JB	01.05.16
REV.	DESCRIPTION	BY	DATE
DESIGN	JB		
DRAWN	RP		
CHECKED	AP		
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	12.04.02		
DART AEROSPACE LTD		REV. B	
HAWKESBURY, ONTARIO, CANADA		SHEET 1 OF 1	
DRAWING NO. M4130N-T		SCALE	
TITLE		NTS	
STEEL TUBING			
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## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061T6to.625w.125

PO / BATCH NO.: 038420 / 5017141

DATE: DEC 05 2017

MATERIAL CERT REC'D: yes

THICKNESS ORDERED: 0.625

QUANTITY RECEIVED: 12'

THICKNESS RECEIVED: 0.625

QUANTITY INSPECTED: 13'

SHEET SIZE ORDERED: N/A

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	N	<u>Ams-WW-T-700/6C</u>
CORRECT THICKNESS	<input checked="" type="radio"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	N	<u>Heat # P002436350002</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK.

RECORD RESULTS BELOW

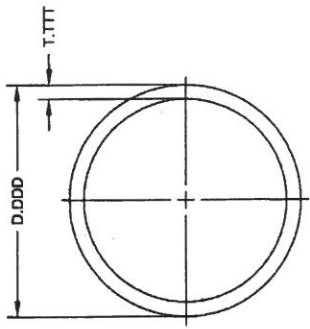
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>[Signature]</u> <span style="float: right;">DAS 9</span> DATE: <u>DEC 05 2017</u>	SIGNED OFF BY: _____ DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in





PURCHASE MATERIAL: 6061-T6/62/6510/6511 SEAMLESS TUBING

SPECIFICATION:

WW-T-700/6  
OR QQ-A-200/8 OR QQ-A-225/8  
OR AMS 4080 OR AMS 4082 OR AMS 4083  
OR ASTM B210 OR ASTM B241

PART NUMBER:

M6061T6T6D.DDD/WT.TTT  
OD | WALL

WHERE "D.DDD" = OD IN INCHES  
"T.TTT" = WALL THICKNESS

EG. 3/8" OD X 0.058 WALL = M6061T6T0.375W0.058

MATERIAL TOLERANCE:

PER ANSI H35.2  $\triangle C$

RELEASED  
2013-07-02

C	COMPLETE REFORMAT, ADDED T6510 & T6511. ADDED AMS 4083, ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/8	CP	04.01.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED	<i>[Signature]</i>		
MFG. APPR.	M6061T6T		
APPROVED	<i>[Signature]</i>		
DE APPR.	<i>[Signature]</i>		
DATE	13.06.12		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO.		REV. C	
M6061T6T		SHEET 1 OF 1	
TITLE		SCALE	
6061-T6 TUBING		NTS	
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# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061T6T0.375W.058

PO / BATCH NO.: 038420/5017140

DATE: DEC 05 2017

MATERIAL CERT REC'D: yes  
 QUANTITY RECEIVED: 24'  
 QUANTITY INSPECTED: 24'  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: .375  
 THICKNESS RECEIVED: .375  
 SHEET SIZE ORDERED: N/A  
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
CORRECT FINISH	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
CORROSION	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	AMS-WW-T-700/6C
CORRECT THICKNESS	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
PHOTO REQUIRED	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	Heat # 4002504860001
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>[Signature]</u> DATE: <u>DEC 05 2017</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

PURCHASE MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING

SPECIFICATION:

WWT-700/8  
OR QQ-A-200/8 OR QQ-A-225/8  
OR AMS 4080 OR AMS 4082 OR AMS 4083  
OR ASTM B210 OR ASTM B241

PART NUMBER:

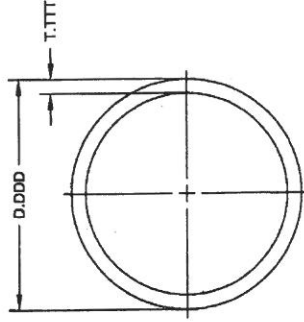
M6061T6T1D.DDD|WWT.TTT|  
OD WALL

WHERE "D.DDD" = OD IN INCHES  
"T.TTT" = WALL THICKNESS

EG. 3/8" OD X 0.058 WALL = M6061T6T0.375W0.058

MATERIAL TOLERANCE:

PER ANSI H35.2 /C



RELEASED  
R 2013-07-02

C	COMPLETE REFORMAT. ADDED T6510 & T6511. ADDED AMS 4083, ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/8	CP	04.01.23
A	NEW ISSUE	DS	01.08.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED			
MFG. APPR.	DRAWING NO. M6061T6T		
APPROVED	TITLE 6061-T6 TUBING		
DE APPR.	SCALE NTS		
DATE	13.06.12		

DART AEROSPACE LTD  
HAWKESBURY, ONTARIO, CANADA  
REV. C  
SHEET 1 OF 1

6061-T6 TUBING

SCALE

NTS

DATE

13.06.12

13.06.12

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## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061T6T0.625w.065  
 DATE: DEC 05 2017

PO / BATCH NO.: 038420/5017139

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 36"  
 QUANTITY INSPECTED: 36"  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.625  
 THICKNESS RECEIVED: 0.625  
 SHEET SIZE ORDERED: N/A  
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	WW-T-700/6c
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	Heat # F002408380002
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.  
 RECORD RESULTS BELOW

	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>[Signature]</u> <span style="float: right;">DAS 9 9-88</span>	SIGNED OFF BY: _____	
DATE: <u>DEC 05 2017</u>	DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

PURCHASE MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING

SPECIFICATION:

WWT-700/8  
OR QQ-A-200/8 OR QQ-A-225/8  
OR AMS 4080 OR AMS 4082 OR AMS 4083  
OR ASTM B210 OR ASTM B241

PART NUMBER:

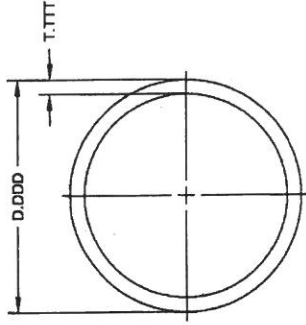
M6061T6T6D.DDDWWT.TTT  
OD | WALL

WHERE "D.DDD" = OD IN INCHES  
"T.TTT" = WALL THICKNESS

EG. 3/8" OD X 0.058 WALL = M6061T6T6D.375W0.058

MATERIAL TOLERANCE:

PER ANSI H35.2



RELEASED  
N 2013-07-02

C	COMPLETE REFORMAT, ADDED T6510 & T6511. ADDED AMS 4083, ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/8	CP	04.01.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED			
MFG. APPR.	M6061T6T		
APPROVED			
DE APPR.			
DATE	13.06.12		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		REV. C	
DRAWING NO.		SHEET 1 OF 1	
TITLE		SCALE	
6061-T6 TUBING		NTS	
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## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304tro.500w.049

PO / BATCH NO.: 038420/5017138

DATE: DEC 05 2017

MATERIAL CERT REC'D: yes

THICKNESS ORDERED: .500

QUANTITY RECEIVED: 40"

THICKNESS RECEIVED: .500

QUANTITY INSPECTED: 40"

SHEET SIZE ORDERED: N/A

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	N	<u>Astm A213-15C</u>
CORRECT THICKNESS	<input checked="" type="radio"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	N	<u># YX 1604531</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.  
RECORD RESULTS BELOW

	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b>		<b>ENGINEERING SIGNOFF (if required)</b>	
INSPECTED BY: <u>rd</u> <span style="float: right; text-align: right;">DAS 9 9-88</span>	SIGNED OFF BY: _____		
DATE: <u>DEC 05 2017</u>	DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION:

ASTM A213 OR ASME SA213 OR ASTM A269

WALL THICKNESS TOLERANCE PER ASTM A269 AS FOLLOWS:

	PERMISSIBLE OD TOL (IN)	PERMISSIBLE WALL TOL
UP TO 1/4"	+0.005	+15%
1/4" TO 1 1/2" EXCL.	+0.005	+10%
1 1/2" TO 3 1/2" EXCL.	+0.010	+10%
3 1/2" TO 8" EXCL.	+0.015	+10%
8" TO 12" EXCL.	+0.030	+10%

PART NUMBER:

M304TR10.DDD(W|.TTT|  
OD | WALL

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES  
AND ".TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W.065

RELEASED  
08/10/20

B	REFORMAT DWG. ADD SPECS (ZN D8-1).	CP	08.10.20
A	NEW ISSUE	DS	01.06.08
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.10.20		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M304TR			
TITLE 304/316 ROUND TUBING			
SCALE NTS			
REV. B SHEET 1 OF 1			
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# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304/1r0.750W.049  
 DATE: DEC 05 2017

PO / BATCH NO.: 038420/5017137

MATERIAL CERT REC'D: yes  
 QUANTITY RECEIVED: 160'  
 QUANTITY INSPECTED: 160'  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.750  
 THICKNESS RECEIVED: 0.750  
 SHEET SIZE ORDERED: N/A  
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	N	
CORRECT FINISH	Y	N	
CORROSION	Y	N	
CORRECT GRAIN DIRECTION	Y	N	
CORRECT MATERIAL PER M-DRAWING	Y	N	Astm A213-15c
CORRECT THICKNESS	Y	N	
PHOTO REQUIRED	Y	N	
CORRECT REF # TO LINK CERT	Y	N	Heat # YX1108593
CORRECT MATERIAL IDENTIFICATION	Y	N	
CORRECT M# ON THE MATERIAL	Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>[Signature]</u> <span style="float: right;">DAS 9</span>	SIGNED OFF BY: _____		
DATE: <u>DEC 05 2017</u>	DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION:

ASTM A213 OR ASME SA213 OR ASTM A269

WALL THICKNESS TOLERANCE PER ASTM A269 AS FOLLOWS:

OD (IN)	PERMISSIBLE	PERMISSIBLE
UP TO 1/2	OD TOL. (IN)	WALL TOL.
1/2 TO 1 1/2, EXCL.	±0.005	±15%
1 1/2 TO 3 1/2, EXCL.	±0.010	±10%
3 1/2 TO 5 1/2, EXCL.	±0.015	±10%
5 1/2 TO 8, EXCL.	±0.030	±10%

PART NUMBER:

M304TR/D.DDD/W.TTT

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES  
AND "TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W.065

RELEASED  
08/08/23  
MJD

B	REFORMAT DWG. ADD SPECS (ZN D8-1).	CP	08.10.20
A	NEW ISSUE	DS	01.06.08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.10.20		

DART AEROSPACE LTD		REV. B
HAWKESBURY, ONTARIO, CANADA		SCALE
DRAWING NO.	M304TR	SHEET 1 OF 1
TITLE	304/316 ROUND TUBING	
DATE	08.10.20	

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## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130NT1.0004.120

PO / BATCH NO.: 038420/5017136

DATE: DEC 05 2017

MATERIAL CERT REC'D: yes  
 QUANTITY RECEIVED: 20"  
 QUANTITY INSPECTED: 20"  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 1"  
 THICKNESS RECEIVED: 1"  
 SHEET SIZE ORDERED: N/A  
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT FINISH	<input checked="" type="radio"/> Y <input type="radio"/> N	
CORROSION	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y <input type="radio"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y <input type="radio"/> N	<u>mil-T6736 B</u>
CORRECT THICKNESS	<input checked="" type="radio"/> Y <input type="radio"/> N	
PHOTO REQUIRED	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y <input type="radio"/> N	<u>Heat # 606333</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y <input type="radio"/> N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y <input type="radio"/> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="radio"/> N <input type="radio"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="radio"/> N <input type="radio"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK.  
 RECORD RESULTS BELOW

	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>rd</u> DATE: <u>DEC 05 2017</u>	SIGNED OFF BY: _____ DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 4130N SEAMLESS STEEL TUBING

SPECIFICATION: MIL-T-6738 OR AMS 6371, 6380, 6361, 6362, 6373, 6374

PART NUMBER: M4130N TD.DDD W.TTT WHERE: "D.DDD" = OUTER DIAMETER (IN INCHES)  
AND "TTT" = WALL THICKNESS (IN INCHES)

DIA. WALL

EG. 3/4" TUBING WITH .035" WALL = M4130NTO.750W.035

RELEASE  
R 2012-04-16

B	REFORMAT DWG TO ACCOMMODATE ADDITIONAL TUBE DIAMETERS AND WALL THICKNESS		RP	12.04.02
A	NEW ISSUE		JB	01.05.16
REV.	DESCRIPTION		BY	DATE
DESIGN	JB	DART AEROSPACE LTD		
DRAWN	RP	HAWKESBURY, ONTARIO, CANADA		
CHECKED	AP	DRAWING NO.	REV. B	
MFG. APPR.		M4130N-T	SHEET 1 OF 1	
APPROVED		TITLE	SCALE	
DE APPR.		STEEL TUBING	NTS	
DATE	12.04.02	COPYRIGHT © 2001 BY DART AEROSPACE LTD		
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